

CeNCOOS Semi-Annual Report  
Period: December 1, 2005 to May 31, 2006  
Questions to Heather Kerkerling, [heather@mbari.org](mailto:heather@mbari.org) or 831-775-1987

This semi-annual report for the NOAA CSC Award, NA05NOS4731123, is expected to cover the period of December 1, 2005 to May 31, 2006. The grant was awarded September 28, 2005. CeNCOOS was awarded a one-year no-cost extension of NA03NOS4730241, extending the termination date to September 30, 2006. Therefore, the report below covers the progress of the Central and Northern California Ocean Observing System from October 1, 2005 to May 31, 2006 with respect to the extended Year 1 and Year 2 grant funds.

### Progress on Regional Association Development

#### New Coordinator and Staff

##### *Full-time Coordinator:*

Heather Kerkerling replaced Stephanie Watson as the CeNCOOS Coordinator August 8, 2005. Stephanie resigned the position in May 2005. Heather joined after holding numerous marine research positions in the central California region and earning a masters degree in Coastal Environmental Management. Limited progress was made to advance CeNCOOS as a Regional Association during the three-month hiring interim. The focus of the new Coordinator is to meet certification criteria for regional associations, advance product development, and to engage and maintain relationships with stakeholders through outreach and education.

##### *Oceanographer and Product Development Lead:*

Dale Robinson joined CeNCOOS half time as the Oceanographer and Project Development Lead. Working from our partner organization San Francisco State University, Dr. Robinson is responsible for developing high quality data products selected for high end user groups, as identified during CeNCOOS site visits, stakeholder visits and through existing economic benefits studies. These products will help engage those end users as well as help augment a portfolio of example data products that CeNCOOS can use to engage additional stakeholders. In addition to the data product development, Dale will help coordinate the development of the CeNCOOS system implementation plan.

##### *CeNCOOS Assistant to the Coordinator: :*

Rondi Robison joined CeNCOOS half time as an Outreach Specialist. Working from our partner institution, University of California, Santa Cruz, Ms. Robison's main tasks will include: a) Chairing the CeNCOOS End User Committee; and b) acting as liaison between the End User Committee and the Product Development Team to ensure development of products that meet users' needs. The Outreach Specialist will also help

the CeNCOOS Coordinator in the development of a CeNCOOS public relations package, outreach strategy, and user workshops.

*UCSC Research Assistant (GRA):*

Moorea Anderson recently joined CeNCOOS half-time to aid in the development of our geodatabase, oceanObs. Funds for the position are included in a subaward to UCSC. Moorea is a recent graduate of UCSC with experience in database management and outreach.

*Contract: Outreach and Strategic Planning*

CeNCOOS recently used funds to contract Paul Siri as an Independent Contractors through MBARI. Paul Siri has extensive experience promoting ocean observing throughout the state of California and the nation. He will help build partnerships with state groups, develop the CeNCOOS BP, offer external review to CeNCOOS governance structure and future plans, and help promote ocean literacy. He is contracted for a period of 3-6 months.

Governance Structure and Business Plan Development

Each Regional Association is charged with meeting governance and business plan criteria, established by Ocean.US, in order to be recognized as an official entity. Proposed efforts in this grant include development of a more formal governance structure.

Significant time was spent in August and September, 2005, researching the governance structures of the other Regional Associations. A phone call was made to each RA Coordinator/Director to discuss and analyze their approach to governance development and institutional organization. CeNCOOS decided to proceed with the MOA created in early 2005.

Progress on the governance structure and business plan development are discussed below:

*Governing Council formed*

In January 2005, the CeNCOOS Governance and Business Plan Committee developed a Memorandum of Agreement (MOA) to initiate CeNCOOS and meet the Governance Certification Criteria for Regional Associations. The CeNCOOS MOA, based on the GoMOOS bylaws and the AOOS MOA, was closed for signing at the end of August 2005. Eighteen of the 28 organizations signed in August. The signatories include academic/research institutions, government agencies, industry and non-profit organizations.

The final signatories are:

CSU, East Bay

CSU, Monterey Bay

California State Polytechnic Institute

Humboldt State University

San Francisco State University/Romberg Tiburon Center  
 Moss Landing Marine Laboratories  
 University of California, Davis  
 University of California, Santa Cruz  
 Hopkins Marine Station, Stanford  
 Alliance of Coastal Technologies  
 DRI/Western Regional Climate Center  
 CODAR Ocean Sensors  
 Southwest Fisheries Science Center  
 Point Reyes National Seashore  
 California State Fish and Game  
 California Coastal Conservancy  
 National Estuarine Research Reserve  
 PRBO Conservation Science  
 Commonwealth  
 San Francisco Marine Exchange  
 Monterey Bay Aquarium Research Institute  
 San Francisco Estuary Institute  
 San Francisco Estuary Project  
 Humboldt Bay Harbor, Recreation and Conservation  
 Pacific Coast Fishermen's Federation Association  
 Natural Resources Defense Council  
 Humboldt Bay Stewards  
 Fleet Numerical

Kerkering continues to expand the CeNCOOS membership to include a greater variety of stakeholders, increasing the number of programs coordinated, and facilitating interactions with other regional coordination activities along the west coast. The MOA is always open for signatures and we are actively recruiting additional organizations and institutions to join the MOA.

In September, each signatory was asked to nominate Council members from the list of signed organizations. After the nominations were complete, three representatives from each organization voted in the election. The Council members represent academic/research (5); government (5); industry (1); and non-profit (3) categories. The final 14 Council members were announced October 20, 2005. The Council members include:

<u>Academic/Research</u>	<u>Government</u>	<u>Industry</u>	<u>Non-profit</u>
Francisco Chavez	Sarah Allen	Laura Pederson	Michael Connor
Newell Garfield	Sheila Semans		Zeke Grader
John Largier	Gary Stacey		Paul Siri
Jeff Paduan	Churchill Grimes		
Mark Moline	Jeff Robinson		

The first Governance Council meeting was held December 1, 2005 in San Francisco. Paul Siri resigned from the Council May 4, 2006.

Kerkering, Robison and Robinson spent much of November preparing for the December 1<sup>st</sup> meeting. Much time was spent preparing relevant documents, creating the agenda, preparing presentations, and organizing the logistics.

November 8: Rondi and Heather

Vision Day

- Spent an entire day outlining the goals and visions of CeNCOOS.
- Prepared for the future in relation to product development, funding opportunities, outreach and increased stakeholder participation.
- Developed the Council meeting agenda and highlighted priorities for a developing RA.

Outcome of First Council Meeting

All 14 members attended the first meeting of the new Governance Council, including CeNCOOS staff, Rondi Robison and Dale Robinson, and the NOAA program manager, Becky Smyth. A representative from Ocean.US, Jenny Thompson, attended and provided a perspective of IOOS and efforts at the national level.

An Executive Committee was elected:

President:	Jeff Paduan
Vice-president:	Francisco Chavez
Secretary/Treasurer:	Mike Connor
Ad-hoc:	Paul Siri
	Toby Garfield
	John Largier

The Council also voted to take a thematic approach to tackling regional issues rather than through the previously established committee structure. Regional issues were narrowed down to three main themes. Three working groups developed from these themes. The Council elected a member to chair each of the working groups:

Working Group 1:	Marine Populations and Interannual Variability
Chair:	Churchill Grimes

Working Group 2:	Public Health/Water Quality
Chair:	John Largier

Working Group 3:	Marine Operations
Chair:	Toby Garfield

Working Group Chairs are responsible for identifying pilot projects associated with their specific theme, as well as selecting individuals to participate in the development of their project. Each member of the Council is assigned to a minimum of one Working Group.

Council Conference Call held February 2<sup>nd</sup> 2006

- Established regular meeting dates
- Review of Working Group progress from each of the Chairs, a two page summary was provided to everyone on the call
- Much of the discussion revolved around the working group plans and potential collaborative organizations and individuals in the region.
- Discussion of current ocean observing legislation on state and national levels – and how that affects CeNCOOS. Members of the Council indicated their efforts in persuading Pombo to promote ocean observing legislation.
- Discussion of CeNCOOS in relation to the State's OPC strategic planning process and movement to create another ocean observing system
- Discussion of involvement with the recently awarded NOAA RFQ to Industry.
- Identification of CeNCOOS needs, such as improved outreach strategies and public relations materials.

The Second Council Meeting was held March 3, 2006 in Oakland, California.

#### Outcome of the Second Meeting

- Identified collaborative avenues with State ocean observing initiatives, such as the OPC and a proposed ocean observing system
- Highlighted relationships with regional partners, such as CICORE, CIMT and COCMP (a State efforts), and designed methods to improve the relationships and increase transparency and collaboration
- Working Group progress to date and plans to move forward in the development of pilot projects
- Strategies to engage more partners
- Participation in upcoming conferences and relation of CeNCOOS to other RAs and the national IOOS effort.
- Structural discussion – what does CeNCOOS need in addition to make this really happen?

The Third Council meeting was June 7<sup>th</sup>. Much of May was spent planning and preparing for the meeting. Topics include:

- Current and Future Governance Structure
- Review of MOA and design of bylaws
- Working Groups updates – specifically, Safe Seas
- Website update and presentation
- Demonstration Project update
- BP update and needs
- Development of Performance Measures

#### Council Conference Calls

January 19<sup>th</sup>: Executive Committee, Working Group Chairs, and CeNCOOS staff

- Provided legislative update and recent trip to DC
- Updated on Marine Habitat Mapping Conference, Francisco Chavez, TOPP meeting, Ocean Protection Council, and other national items
- Reviewed Working Group ideas and ERD proposal
- Agreed to identify and select a NFRA Representative

February 2<sup>nd</sup>: Council Conference Call

- Review of WG pilot projects and steps to move forward
- Paul provided legislative update and DC efforts
- Discussed how to improve Partner involvement and increase MOA signatures
- Relationship between CICORE, CIMT, PISCO and CENCOOS examined
- Draft of BP discussed and evolving certification criteria

Heather frequently hosts calls with members of the Executive Committee to make financial decisions and request advice regarding CeNCOOS development issues.

### *Business Plan Development*

CeNCOOS and the Southern California Ocean Observing System (SCCOOS) received funding from the Resources Legacy Fund Foundation to hire a consultant for the business plan. We are currently researching potential consultants. The goal is to have the business plan completed in late 2006. CeNCOOS has been developing a document of CeNCOOS partner capabilities in observations, DMAC, modeling, and outreach, as well as listing additional funding opportunities. This document will aid in the creation of the business plan.

A business plan is required for Regional Association certification. The business plan criteria are currently under modification at the national level. CeNCOOS is working with SCCOOS to create a draft business plan suitable to individual RAs as well as the overall state ocean observing efforts. This is a working document requiring continuous communication via phone, email, and face to face meetings.

September 12<sup>th</sup> and 20<sup>th</sup>, 2005: Met with Debbie Duckworth of SCCOOS.

- Evaluated business plan criteria and characteristics of SCCOOS and CeNCOOS.
- Discussed west coast industry workshop possibilities
- Determined our roles in the BP development
- Reviewed legislation affecting California

November 4, 2005: Met with Debbie Duckworth at SCRIPPS

- Reviewed developing business plan documents
- Determined future research needs and delegated responsibilities

December 3, 2005 and February 2, 2006 and March 3, 2006

- Reviewed BP development with the Council and received feedback

January 31, 2006

- Conference call with Eric Terrill (SCCOOS) and Jeff Paduan to discuss the RLFG funds and cooperative development of the Business Plan

April 4-6 2006

- Met with the SCCOOS team, specifically Eric Terrill and Stephanie Peck, to create a more formal outline and structure for the Business Plan.
- Identified overlapping sections of the Business Plan and opportunities to cater the plan to our individual regional needs.

May 17, 2006

- Discussed with Rondi Robison the creation of the end user portion of the business plan. We met to design and create a working document for RA distribution and a portion of the Business Plan.

Between conference calls and meetings, Kerkering and Robison work together to further expand and analyze the end user research for the Business Plan document.

### Meetings, Workshops and Conferences

CIMT and CICORE

October 18 CICORE-CIMT workshop

CICORE: Center for Integrated Coastal Observation Research and Education

CIMT: Center for Integrated Marine Technology

- Began discussions of how to fold CIMT and CICORE programs under CeNCOOS for 2008
- Identified next steps, funding routes, and research priorities.
- Agreed that regional products should display a CeNCOOS logo.

November 2005 Sheila Semans, Becky Smyth and Paul Siri

- Continuously discussed the proposed California Coastal Ocean Observing System proposal.
- Evaluated the proposal in relation to the two developing regional associations in the state

November 1-3: IOOS DMAC Steering Committee Meeting; Washington D.C.

- Attended by John Graybeal and Dave Foley of CeNCOOS
- The Steering Team identified the following actions:
  - Integrate key activities and interests of the RA into DMAC work areas
  - Establish membership and work plans for the community engagement caucuses
  - Establish membership and work plans for Expert Teams formed to date: Metadata and Data Discovery, Transport and Access, and Archive
  - Establish membership and approach for Systems Engineering Working Group
  - Address tools for collaboration among DMAC entities

- Address coordination with efforts such as USGEO, ORION< QARTOD and OpenIOOS
- Address DMAC Governance Process

#### November 2-4: QARTOD Meeting: San Diego

- Attempt to clarify relationship between QARTOD, IOOS and DMAC
- Focus on elements of metadata, data discovery, transport, online browse and visualization, and archival
- Development of QC/QA standards
- Luis Bermudez of CeNCOOS discussed ontologies for data management
- Move toward harmonizing vocabularies
- Discussion of IOOS QC practices for Remote Currents, in-situ currents, waves and CTDs

#### November 14: Data Meeting Overview with CeNCOOS folks

- John Graybeal, Josh Pederson, Heather Kerkerling and Rondi Robison
- Met to review conferences attended
- Discussed data integration strategies, the marine metadata initiatives, and product development
- Improved understanding of IOOS compliant applications

#### November 15<sup>th</sup>: COCMP State Review: San Francisco, CA

- Attended by Coordinator and several Council members
- Review of goals and progress of \$21M state funded effort to establish HF Radar along the coast in collaboration with the two regional associations
- CeNCOOS and end user reports and data provided by Rondi Robison to the Coastal Conservancy for the review.

#### November 21-23: Science and Technology in GEOSS: The Role of Universities: San Diego

Information sharing between state, regional, national and international observers for the benefit of improved data management and geographical products.  
 Consideration given to funding possibilities and distribution of these funds to all of those involved, data management, focus on developing countries, modernization, and achieving public buy in.

#### December 5-8: CalCOFI: San Diego

- Attended by Francisco Chavez, VP of CeNCOOS Executive Committee
- Identified CalCOFI efforts helpful to CeNCOOS efforts and program

#### December 8 - 9; PaCOOS meeting: San Diego

- Attended by Francisco Chavez of CeNCOOS Executive Committee
- Heather Kerkerling became member of PaCOOS Board
- Created presentation highlighting collaborative possibilities between PaCOOS and CeNCOOS

December 6-9: IOOS Strategy Session: Washington DC

- Attended by Heather Kerkering, Paul Siri, Sheila Semans and Amber Mace
- Worked with Paul to meet additional California constituents in DC, such as the California Association of Sanitation Agencies, the Association of California Water Agencies, UC and CSU officials.
- Participated in a meeting of government and industry to identify potential avenues for securing long term funding for IOOS. Focused on developing a common message and strategy for advocating for ocean observing.

December 12, 2005: Marine Habitat Mapping Conference with OPC at CSUMB

- Identified mapping needs for the entire state of California
- Developed plan for statewide mapping
- Updated mapping capabilities, identified additions to data coverage, identified gaps, prioritized areas
- Made recommendations for 2006 Central Coast Mapping RFP
- Selected Moss Landing to Bodega regions for increased mapping priority

January 13<sup>th</sup>: Ocean Protection Council Meeting

- Discussed the MBA CFFO interest in the OPC's EBM approach
- Introduction of strategic plan draft
- Focus on ASBS with the State Water Resources Control Board
- Supported projects: Morro Bay EBM and California Coastal and Marine Mapping Initiative

January 23 - 25: IOOS and Public Health: St. Petersburg, FL

- Researched CeNCOOS and related public health issues to develop poster and gather information for the conference.
- Met frequently with CeNCOOS Council member, John Largier, to review public health issues and create the conference poster.

February 13-14, 2006: SCCOOS Board of Governors Meeting

- Attended in reference to the developing business plan between the two regional associations.
- Established bylaws
- Nominated Senior Advisory Committee members
- Updates on progress in the fields of remote sensing, education, modeling, and state efforts
- Established connections for improving water quality focus in our region

February 19: Pacific OOS Conference: Honolulu Hawaii

Provide opportunity for the IOOS regional associations bordering the Pacific Ocean to get to know each other better and learn what each region is doing for ocean observing:

- Share accomplishments and lessons learned
- Explore opportunities for collaboration

- Increase integration with Pacific

In particular, the group will focus on issues relating to data management, modeling, and information products

#### February 19-25: Ocean Sciences

- Met with representatives from Regional Associations, Ocean.US, NOAA and California State initiatives.
- Council members hosted and presented talks in the 1.5 day session on ocean observing; Rondi and Heather also attended much of the education and outreach sessions
- Presented a poster in the ocean observing session
- Dale Robinson represented both CICORE and CeNCOOS

#### March 4: Sanctuary Symposium

- Participated in symposium focusing on MLPA and driven MPA efforts in Central California.

#### March 9-10: NFRA Meeting

- Voted on NFRA bylaws and discussed election of officers
- Reviewed legislation, communication plans and priorities
- Reviewed RFQ with Raytheon
- Presented oceanObs and Demonstration Project with members
- Assessed the need for identifying coastal management needs in the area
- Identified success stories from around the nation
- Provided feedback to Ocean.US regarding certification criteria.

#### March 8: CASA presentation

- Rondi Robinson and Paul Siri presented the benefits of ocean observing to CASA
- March 23-24: Safe Seas Meeting: San Francisco, CA
- NOAA HAZMAT hosted a meeting with the Sanctuaries, State Parks, USCG, CeNCOOS, to review plans for the 2006 scenario.
- Council members met with NOAA reps, including Becky Smyth, SSC Jordan Stout, and HAZMAT reps from Seattle, to review existing HF Radar capabilities in the Bay that could possibly be of use in the ICS.

#### March 23-24: NOAA Safe Seas 2006 meeting

- CeNCOOS participated in a planning meeting for the SS06 exercise in San Francisco.
- We met with members of the NOAA Hazmat design team to promote and offer our HF Radar technologies for the scenario.
- Participants included CeNCOOS, National and State Parks, USCG, Sanctuaries, NOAA folks, and others.

#### March 23<sup>rd</sup>: Ocean Protection Council Strategic Planning Meeting

- Jeff Paduan, Toby Garfield, Mike Conner, Paul Siri and Heather Kerkerling provided comments in the development of the 5-year OPC strategic plan.
- Discussed collaborative efforts with members of the Conservancy staff.

April 18, 2006: Website meeting

- Heather, Dale and Rondi met to review and strategize for the development of the website.

April 20, 2006: Ocean Protection Council Meeting – Sacramento

- Jeff Paduan and Heather Kerkerling traveled to the OPC meeting for the review of the state's ocean observing plan, OSA.

May 10, 2006: Data Train Meeting

- Meeting to identify and discuss data production, storage and formats of the following groups:
  - PISCO, MBARI, Coastwatch, ACT, CIMT, COCMP, CICORE, TOPP, and MBNMS/SIMoN

We identified overlapping and potential collaborative projects. We also attempted to identify various formats compatible with developing projects in the region.

May 12, 2006: Dick West (CORE) meeting

- Heather and Rondi met with Dick West at UCSC. We identified avenues for CeNCOOS to work more closely with COSEE and other CORE funded projects. The main focus of the meeting was improving ocean literacy in the region.

May 15, 2006

- Heather, Rondi and Churchill Grimes met with Baldo Marinovec (UCSC) to aid in the composition of a proposal regarding krill studies in the California Current Ecosystem. The proposal will be submitted to PaCOOS and we will be working with SCCOOS on the project.

May 18, 2006

- Heather (CeNCOOS), Rondi (CIMT) and Krista (CICORE) met to identify projects within the two ocean observing systems, areas of potential overlap, structure, and the possibility of folding into CeNCOOS.

May 22-23<sup>rd</sup>: Safe Seas 2006 meeting: CeNCOOS/NOAA HAZMAT

- Organized a one day (22<sup>nd</sup>) meeting with NOAA HAZMAT, HF Radar (COCMP), and CeNCOOS. The meeting focused on technologies available within CeNCOOS for improved oil spill forecasting and hindcasting. CeNCOOS is working to have multiple HF Radar sites operating in the SF Bay region for the August scenario.
- The second day of meetings focused on other potential CeNCOOS data providers for SS06. Attendees included OSPR, Sanctuaries, National Parks, and UC and CSU programs.

## IOOS and National Level

### December 14: NFRA Communication Committee Call

- Voted onto Communication Committee with Molly McCammon, Eileen Shea, Jan Newton, and Joanne Bitz
- Identified role and purpose of the committee
- Created a draft outline of the Communication Plan, mission, and identified key audiences
- Established methods for effective communication between RAs as well as Ocean.US and federal agencies

### January 5: NFRA Communications Committee phone call

- Developed survey for all RAs regarding communication efforts and needs
- Began developing strategic plan for introduction at March NFRA meeting

Members from each of the RAs completed the communication survey designed by the committee. This led to the development of the communication strategic plan.

### March 9: CSO efforts and outreach

- Rondi spoke with Jena at CSO acknowledging that CeNCOOS would like to participate in the CZM workshop and factsheet
- CeNCOOS is in the running for a CSO-sponsored workshop on CZM
- Rondi spoke with Chris Ellis at CSC regarding the needs assessment, incorporating Pacific Regional Association on identification of outreach strategies that were discussed at Ocean Sciences

### May 10: Meet with Raytheon

- Raytheon, a recipient of a NOAA RFQ for developing an IOOS conceptual design, met with members of CeNCOOS to better understand organizations, structure and projects in the region.

## Ocean.US

### November 2005 Mary Altalo and Jenny Thompson

- Held numerous conference calls with Ocean.US, particularly with the new Director, Mary Altalo and staff, Jenny Thompson. Rondi Robison and Kerkerling participated from CeNCOOS.
- Discussed certification criteria and developing goals for IOOS and RAs.
- Communicated challenges in RA development

## Regional Association and Development Conference Calls

### *Regional Outreach (WOO) meetings and calls:*

October 3 cc Becky Smyth, Rebecca Pollock, Sheila Semans, Heather Kerkerling, Rondi Robison

- CalCOOS report available for Review till Nov. 28
- Update from recent meetings and conferences
  - NFRA
    - Mary Altalo is new Director of Ocean.US
    - Certification process is begin identified for RAs
  - Ocean Protection Council
    - Introduction of CalCOOS to the state of California

*Regional Association Conference Call: October 6, 2005 (September meeting delayed)*

- Tom Malone introduced the new Ocean.US Director, Dr. Mary Altalo. Dr. Altalo will officially become the new Director of Ocean.US effective December 1, 2005.
- The Senate has moved forward on the Appropriations bill, and has named conferees. There is skepticism about the commerce bill because of large difference in numbers: The Senate bill (Sen. Snowe) authorizes \$150 million compared to \$35 M in the House bill.
- All of the RAs have been awarded. The last one to be awarded was the CeNCOOS on 28 September 2005.
- It is recommended in the IOOS Plan that a process be put in place for certifying RAs. Tom Malone expressed concern that the word “certification” may not be the right word since the initial goal is to qualify RAs for certification. Ocean.US will develop a draft process of qualifying as an RA,

*Regional Association Conference Call: October 25, 2005*

- No update on legislation and appropriations. House and Senate are trying to reconcile differences in proposed IOOS funding.
- RAs should identify projects in their region that support their ocean observing program.
- Jenny Thompson and Mark Altalo will be visiting each RA in the next few months.
- IOOS had a successful session at the ERF conference in Norfolk, VA.
- Discussion of alternative ways to include federal organizations on RA boards. Should oceans.US develop an MOA at a national level rather than at a regional level to work with federal issues?
- Received feedback on IOOS efforts from the Gulf region’s American Shore and Preservation Association.

*Regional Association Conference Call: December 1, 2005*

- RAs to meet with EPA to explain IOOS and engage them
- Announcement of the 2006 remote sensing working, supported by NASA
- Shared information regarding effort to develop a national water quality monitoring network.
- Mike Hemsley creating a three stage budget plan for IOOS
- Encouragement for RAs to participate further in OpenIOOS

- Ocean.US t prepare and explanation of the roles and responsibilities of all the IOOS stakeholders

*Regional Association Conference Call: January 26, 2006*

- NFRA working with CORE to develop a revised legislative bill that the California Delegation can take to Representative Pombo (Chairman on the House of Resources Committee)
- Second year of grant monies already distributed by NOAA
- Agreed to write newsletter in August for NFRA
- Reviewed progress and changes in certification criteria
- Ocean.US had a great presence at Industry Day, January 20<sup>th</sup>

*Regional Association Conference Call: March 30, 2006*

- Coalition working to move bill in the House
- Certification criteria being submitted to NOAA counsel for legal review
- NFRA held kick off meetings with each of the RFQ contractors
- Encouraged to review the National Ocean Research Priorities Plan

*May 24, 2006: Needs Assessment Call with Josie, Geno and Chris Ellis*

- Paul Siri, Heather Kerkering and Rondi Robison spoke with the NFRA Needs Assessment Team in an effort to evaluate the current status and future direction of CeNCOOS. We identified a variety of product needs and areas of focus for end users.

*May 25, 2006: NFRA Conference Call*

- Ocean.US website under construction – provide feedback
- Review of DMAC ST
- Review of NOAA Conceptual Design Process - in the process of developing a advisory team to help the IOOS community
- Update on Certification Criteria – waiting for NOAA lawyers to approve
- CDC agrees to participate with IOOS and Ocean.US
- Try to involve components of DOI.

Product Development

*Product Development: oceanObs*

CeNCOOS has a geodatabase, oceanObs ([www.oceanobs.org](http://www.oceanobs.org)), containing information about ongoing ocean observing activities in the region, which will be useful in constructing the business plan. oceanObs is a web-based information management and data discovery tool created to administer and provide access to the ocean observing programs that are part of the Integrated Ocean Observing System (IOOS). From the broadest perspective, oceanObs is a data management tool that allows a variety of user groups to catalogue, present, and query ocean observing information, such as sensor locations, observing parameters, collaborators, and data products. oceanObs does not integrate data streams from observing programs; rather it is a tool to manage metadata-

level information about these programs. oceanObs is a versatile, multi-use system that allows observing program managers to administer metadata on their activities, while providing a means for coordinators of regional associations to query and report on programs in their respective areas. In addition, select information from regional ocean observing programs, such as how to access data products or the locations of specific data sensors, is available through a public web-based interface.

oceanObs was originally developed by the Sanctuary Integrated Monitoring Network (SIMoN), a program of the Monterey Bay National Marine Sanctuary (MBNMS), and the National Coastal Data Development Center (NCDDC) to manage information for the Central and Northern California Ocean Observing System (CeNCOOS). Together, these organizations designed a centralized database, a secure website, and an internet mapping application that provided the functionality necessary to manage information on the ocean observing programs in the CeNCOOS region. After incorporating feedback from various NOAA agencies involved in IOOS, the oceanObs system can now be employed by all of the regional associations of IOOS.

In late August 2005, all CeNCOOS partners were invited to participate in oceanObs. A number of partners began inputting their data into oceanObs. Although partner response was slow, oceanObs was well received in the IOOS world and has been highlighted at a number of conferences and meetings. Most recently, oceanObs was discussed at the Eastern Pacific Ocean Conference in September and at the Estuary Research Federation Conference in October. Josh Pederson, the creator of oceanObs, also attended the OOS Tech meeting in D.C. as the CeNCOOS representative. Additionally, it was presented at the March NFRA meeting in DC. The other regional associations are very interested in developing an oceanObs-like product for their region.

We are in the process of soliciting more partners to participate.

With the new NOAA grant award, CeNCOOS hired a staff member through the UCSC system to aid in outreach and data management with oceanObs. The position is half time and began April 2006.

#### *OceanObs Meetings*

October 3 Josh, Rondi and Heather

- Scripted GRA position description
- Identified criteria for improving the geodatabase

October 19 Josh and Heather

- Reviewed progress of oceanObs and goals for the program and upcoming OOS Tech meeting in D.C.
- Began identifying changes needed on the CeNCOOS website and how to display oceanObs.

November 14 Josh, Rondi and Heather

- Brainstormed website design and potential improvements

- Received proposal from Josh to redesign the CeNCOOS website.

#### January

- Worked with UCSC to create position description and advertise

#### February

- Interviewed 5 candidates for the position

#### March

- Worked through the hiring process with UCSC, such as paperwork and paycales
- Moorea finally starts!
- March 29: Josh, Rondi, Heather and Moorea meet for a debrief of the first couple weeks and create a schedule for meetings and next steps

Moorea began contacting partners in April and has already greatly improved and populated the database. The CeNCOOS/OceanObs group (Josh Pederson, Heather Kerkerling and Rondi Robison) meets with Moorea twice a month to review progress, concerns and technology issues.

### Data Integration and Demonstration Projects

#### *Product Development Team formed*

The three CeNCOOS staff members, Kerkerling, Robinson, and Robison, formed the Product Development Team (PDT) with reception of the grant. The PDT met on numerous occasions to identify high priority product needs and potential data contributors and users.

Kerkerling and Robinson communicate frequently regarding new data producer and user contacts. The PDT spoke and emailed often in the process of selecting ERD as the potential entity accepting the subaward and in reviewing and creating a response to the final proposal.

Kerkerling and Robison continue to identify priority research topics for stakeholders in the region. In the CeNCOOS end user process, the end user group (led by Robison) identified group types (Federal, State, Local, Regional, non-profit, industry, public) that had been contacted in original needs effort to identify if there were groups not covered; broke down variables, uses specified and data types of product needs requests; broke out which organizations requested current information.

October 21 ERD Roy Mendelssohn, Jerome King, Heather Kerkerling, Rondi Robison, Francisco Chavez, Dave Foley, Frank Schwing, and Lynn DeWitt.

- CeNCOOS collaborated with ERD to begin product development. CeNCOOS contracted a project technician, Jerome King, through Aquatic Farms, to create a CeNCOOS-driven currents demonstration project. The demonstration project proposal includes information on data availability and methods for data

integration and project design. Toby Garfield (COCMP) will provide CODAR data; Dave Foley (in collaboration with Raphe Kudela) will provide satellite imagery; Francisco Chavez will provide mooring data from MBARI; and Rondi Robison will provide a list of variables identified by end users to guide the project design. Included in the proposal is a request for a new CeNCOOS computer to host the LAS and final product. Jerome King will be the project technician and set up the CeNCOOS LAS. The project will be displayed in daily resolution and be made available on cencoos.org for public/end users. The project will fit in the budget, \$78K, originally allotted to FNMOC. The funding will not go to ERD. Funds from the \$18,000 supplies budget will be used to purchase computers and software necessary housing a CeNCOOS LAS.

November 14, 2005 Proposal Received from ERD

- ERD submitted a final proposal to CeNCOOS for the \$78,000 subaward.
- The proposal is currently under review.

November through February

- Proposal goes through numerous versions before agreement

February 8: ERD discussion

- Rondi, Heather and Josh meet to review the ERD proposal in relation to the efforts of oceanObs

February 15: PDT meeting

- The Product Development Team reviewed the ERD proposal with the Executive Committee and Dave Foley. Decide to move forward.

March – May

- Constant interaction and discussion between CeNCOOS, specifically Dale Robinson, ERD (Dave Foley) and Jerome King. The Demonstration Project team was able to integrate various datasets and create an interactive site for end users. The project is not final, but is very much a work in progress and will serve as a guide for other RAs and their integration efforts. The most recent version will be presented at the third council meeting.

### *CIMT Subaward*

Continuous meetings throughout October to determine allocation of subaward funds

- Rewrite proposal for better allocation of funds
  - Funds allocated to data management, website design, and CIMT PIs.
- Budget justifications
- Statement of work for recipients of subaward
  - PIs include UCSC ocean observation scientists
    - PIs include Bruland, Croll, Kudela, Marinovic and Silver

January 6: CIMT database

- Rondi met with Raphe Kudeal to update the CIMT database

February 1: CIMT product development

Rondi and Brian Fulfrost meet to review progress toward CIMT product development (ArcIMS) for CeNCOOS and identification of next steps

February 3: CIMT meeting at MBARI

- Discussed the move from an earmark to a competitive process and methods for reaching that goal.
- Interested in supporting Regional symposium for CeNCOOS
- Agreed to market products as CeNCOOS
- Discussed a small group locally (CICORE, CIMT and CENCOOS) to identify cooperation and areas of overlap
- Revisit CIMT mission and goals with new funding opportunities
- CeNCOOS supported CIMT database

#### *Additional Product Development Meetings*

October 6 John Graybeal cc Dale Robinson, Rondi Robison

- Data Integration process: recommendation of 8 possible modes, need to simplify, have organized and goal oriented meeting
- For product development he prefers to be tasked with the need and then get science and stakeholder input
- SSDS available later this year

August, September and October: Continuous data meetings with Francisco Chavez

- Updates on ocean observing technology and research
- Guidance regarding data integration and methods for product development
- Identification of PIs for potential products

September 30, 2005: Dale Robinson and Toby Garfield, COCMP

COCMP: Coastal Ocean Currents Monitoring Program

HF Radar Demonstration Product

- Discussed demonstration products using HF Radar that are valuable to user groups.
- Continue discussions with willing data providers to modify or expand existing projects. Identify any obstacles.
- Examined HF Radar products on the Internet to do a brief competitive analysis of user interfaces.
- Introduced several products that are possible and that might be useful for a variety of users (statistical analysis, GIS programs).

October 7, 2005: Dale Robinson, Toby Garfield, Mark Moline and Jeff Paduan, COCMP

- Explored ways in which the existing HF Radar products may be expanded or modified.
- Discussed how willing data providers are to modify or expand the existing products.
- Identified obstacles to modifying or expanding existing products.
- Discussed the pros and cons of a drifter simulation project and areas for improvement.
- Examined the UConn and Rutgers University demonstration with the USCG as a model for CeNCOOS.

#### November 8: Wind Product

- Discussed CIMT wind product with Yi, Leslie

#### November 10: Jerome King

- Met with Jerome King to review ERD proposal and the CIMT database

#### November 11: DMAC

- Josh Pederson, John Graybeal, Heather and Rondi met to review IOOS DMAC and relationship to CeNCOOS

#### February 15: COCMP and CeNCOOS

- Dale Robinson met with COCMP PIs (Jeff and Toby) to establish functional design requirements for web presence

#### March 29: MMI

- Heather and Francisco met with Luis Bermudez (MBARI, MMI) to discuss interoperability, MMI efforts and relationship to CeNCOOS and additional IOOS movements

#### May 2006: Data Train

- CeNCOOS hosted a small data meeting for the Monterey region, focusing on data collection, products and formats of various ocean observing systems in the region.

#### Additionally, Dale Robinson, as the Product Development Lead, has

- Hosted a workshop for the COCMP/CeNCOOS web presence and established standards for data products, delivery structure and file naming conventions
- Worked with Partners (CICORE, SFEI, USGS) facilitating the development of a project examining primary productivity and sediment transport in SF Bay using remote sensing and field sampling. Four fellowship proposals have been submitted to fund the project...pending.
- Worked with Dave Foley to secure data streams to populate the Demonstration product LAS
- Contributes periodic updates to the CeNCOOS website
- Redesigned the CeNCOOS 'activities and data' webpage

- Completed design concepts for webpage, including graphics, architecture, and design concepts for COCMP/CeNCOOS page
- Worked with Dave Foley to integrate web design with the backend functionalities of the Demonstration product
- Explored the possibility of CeNCOOS supported proposal for Sediment Transport. Determined that a proposal was already being developed by a local researcher. Recommended that we request a spot on their End User Committee.
- Worked with Agilent Technologies and Sun Microsystems to develop wireless technology for data transfer and a variant of RSS push technology (nRSS) to deliver data. In addition, Java-based side modules to post-process data are under development, demonstration project up on the web (<http://www.netbeams.org>), work is underway to expand the suite of sensors that can be supported, and personnel from CeNCOOS partners are being trained in Java programming and nRSS.
- Rondi, Heather, Dale and Paul continue to strategize on the development of the website. This is a constant process and we regularly discuss the planning, building, and look of the website under construction.

### Education

November 7, 2005 Robison, Kerkerling and George Matsumoto

- Rondi and Heather met with George Matsumoto, Education Specialist for MBARI, to discuss education and outreach strategies for CeNCOOS.

November 8, 2005: Robison and Kerkerling

- Vision Day exercise.
- Developed outreach strategy and ideas for public relations package

Rondi and Heather also continue to meet with COSEE, MATE (a local marine education program), and members of CORE to address education and outreach strategies for IOOS. Many of these meetings and conversations occur at conferences throughout the world, specifically in DC and Hawaii (Ocean Sciences conference).

May 12, 2006

Rondi Robison, Heather Kerkerling and Gary Griggs met with Dick West (CORE) to discuss educational programs in the region and avenues for partnership with COSEE.

May 28, 2006: MBARI Education Strategic Plan

Heather Kerkerling met with George Matsumoto of MBARI to provide feedback and assistance in the development of the first Education Strategic Plan for MBARI. The Strategic Plan should be completed by the end of the summer and, hopefully, approved for implementation in January 2007. CeNCOOS plans to partner with MBARI as the educational component of ocean observing grows.

## Stakeholder engagement

CeNCOOS staff continues to engage partners and stakeholders in the CeNCOOS region through a variety of means. Heather frequently travels throughout the region to meet with state agencies, non-profit representatives, and industry. Many of these organizations are in attendance at conferences and workshops, providing greater avenues for sharing ideas, promoting ocean observing and the regional association, and developing partnerships to aid in the development of CeNCOOS. Additionally, the CeNCOOS listserv grows everyday as more people become interested in the RA and discover avenues for participation. Each of the Council members is also involved in other university, NGO or state programs that benefit from and contribute to the CeNCOOS efforts. During this time frame, we've added more organizations to our Partner list and one as a signatory to the MOA, the Sonoma County Water Agency.

### March 31: Meeting with SAIC

Paul Siri and Heather Kerkerling met with Tucker Pierce of SAIC to discuss the relationship between IOOS and their efforts (NDBC and others). We identified a number of collaborative projects going on in the east coast, such as the Chesapeake Bay Ocean Observing project, that greatly models efforts we want to pursue in the San Francisco Bay region.

CeNCOOS is also engaged in conversation with the Coastal Data Information Program regarding collaborative efforts and product development aiding the Regional Associations. Heather Kerkerling works with Julie Thomas to better understand the CDIP resources available to CeNCOOS, and vice versa.

During the months of April and May, Heather Kerkerling and Rondi Robison met numerous times with the Alliance for Coastal Technologies (ACT), the Partnership for Interdisciplinary Studies of Coastal Oceans (PISCO), Center for Integrated Marine Technology (CIMT), Center for Integrative Coastal Observation, Research and Education (CICORE), and Tagging of Pacific Pelagics (TOPP).

In the upcoming months, we have stakeholder meetings scheduled with numerous state agencies, including the water boards, ports and the UC and CSU academic systems.

## State Initiatives

Heather Kerkerling and Rondi Robison work directly with members of the Council, Paul Siri and Sheila Semans, to coordinate with state ocean observing efforts. California is unique in that the state has provided \$21M in funding for the Coastal Ocean Currents Monitoring Program (COCMP) to install a system of HF Radar instrumentation along the entire coast, using the Regional Associations (both CeNCOOS and SCCOOS) to aid in installation, data collection and integration. Members of CeNCOOS working directly with the project include Paul and Sheila, as well as Jeff Paduan, Toby Garfield, John

Largier, and Dale Robinson. These individuals attend numerous meetings and workshop to develop the COCMP program.

The State has also formed the California Ocean Protection Council (OPC) in response to California's ocean action plan. Many of the decisions made by the OPC greatly correspond with and effect CeNCOOS goals and efforts. Therefore, CeNCOOS makes every effort to attend the meetings, voice our opinion, and support items that aid in California ocean observing system. Currently, we are providing feedback to the Conservancy's Ocean Science Application proposal to create a state-focused ocean observing system in collaboration with the two Regional Associations.

CeNCOOS acknowledged its support of the state's Ocean Science Application (OSA) at the most recent OPC meeting in Monterey. The OSA was adopted and CeNCOOS will be working closely with the OSA group as the form.

Additionally, CeNCOOS is supporting a workshop focused on the development of a 3D model of SF Bay. Most of the effort and support is through state water agencies, but CeNCOOS is helping by organizing and providing resources for the development of a product that will greatly aid many stakeholders in the region.

#### California and World Oceans Conference

Heather Kerker met with the SCCOOS group to establish a method of identifying ocean observing/regional association related presentations and talks at the CWO meeting in September. Both SCCOOS and CeNCOOS are working with the OPC to design a track session for ocean observing. The RAs are also working on a collaborative, interactive display of regional and statewide developed products.

The track session for CWO was approved by OPC. Currently, SCCOOS and CeNCOOS are working together to create an interactive display/booth at the conference, highlighting ocean observing in California.

#### The Future

The main priorities for CeNCOOS in the near future include:

- Working Groups: development and growth, meeting pilot project goals, increasing participation, hosting workshops. Expand efforts with Safe Seas exercise (WG#3) and with the recent krill proposal with SCCOOS (WG#1).
- Collaborate with state and national efforts to develop ocean observing
- Increase outreach efforts and level of partner participation
- Improve website
- Demonstration Project
- Safe Seas scenario with NOAA Hazmat
- Make collaboration transparent with existing ocean observing efforts in the region, such as CIMT, CICORE, COCMP, and PISCO
- Fall CeNCOOS Partner workshop

- Identify similar efforts and strategies with ORION, OOI and other national efforts.

#### Upcoming Conferences

IOOS DMAC Steering Team: May 10-12, 2006

The Coastal Society: May 17-18

Safe Seas Scenario: May 22-23; August 7-8

Sensor Catalog Workshop: June

QARTOD IV: June

NMEA conference: July

California and World Oceans Conference: September

Remote Sensing Workshop: October

NFRA Retreat: October

#### CenCOOS Priorities for Ocean Observation

##### Observations

- Coordinate with ORION
- Maintain and enhance NDBC buoys and coordinate with DART
- Expand CalCOFI/PaCOOS coverage
- Find avenues to federally support other existing programs and their oceanographic efforts, including federal support for remote observing technologies.
- Ensure long term support for satellite altimetry, SST, ocean color, and scatterometry, with science data quality validation and long term archival of data.
- Capitalize upon the State of California's investment in High Frequency (HF) radar and associated technologies. Provide funding through RAs for operation and maintenance of COCMP, as part of the HF effort. Make the National Surface Current Mapping Initiative fully operational.
- Maintain and expand coastal monitoring stations, which include temperature, salinity and tidal height.
- Maintain existing observing efforts
- Enhance in situ data collection (physical, chemical and biological)
- Enhance remote sensing capabilities

##### DMAC

- Provide metadata guidance and support interoperability demonstrations
- Identify data model standards and common data handling protocols
- Develop mature data management and communications tools
- Develop a standardized framework for different levels of quality control standards and protocols.
- Ensure sufficient bandwidth for data communications.

- Demonstrate enhanced data products using gridded and non-gridded data from the national backbone. Focus on a common interface that stakeholders can use and recognize as part of IOOS.
- Make data available via internet accessible services
- Participate in IOOS interoperability demonstrations and MMI demonstrations
- Inclusion of the State of California data and data management efforts

#### Modeling

- Data Integration Demonstration Project: includes CODAR data, satellite imagery and mooring data. Aids in transport, search and rescue, navigation, invasive species. Data products for end users from existing models (ERD, AOSN, TOPP)
- Develop sediment transport model for end users in SF Bay
- High resolution oil spill models that are user-friendly with CODAR
- Operational ecosystem model.
- Update and validate existing models
- Focus on stakeholder engagement (industry and resource managers)
- Hold a focused end user workshop in four sub-regions of CeNCOOS (North coast, SF Bay, Monterey Bay, and Morro Bay/San Luis Bay)
- Develop a CeNCOOS exhibit
- Develop a 'State of the Region' website and products to aid the Marine Life Protection Act project.
- Develop data products by integrating available data in the region.

### 3. Issues, Challenges and Opportunities

#### Issues that need to be resolved:

- Coordination with the State's new effort, OSA
- Insufficient funding
- Liability issues
- Certification criteria for ocean. Us
- Governance criteria and structure

#### Challenges:

- Lack of leadership on the federal government level. For example, not making clear or attempting to resolve the issue of federal participation. Additionally, there is no certifying body at ocean.us or official business plan criteria. The criteria is now in the hands of the IOOS and GEOSS Executive Committee.
- Lack of funding. It is difficult to create products and engage stakeholders without any long-term security. PIs and CeNCOOS enthusiasts are skeptical of IOOS and therefore, losing enthusiasm and devotion to the plan.
- Engagement of industry
- Maintaining avenues of participation with CeNCOOS

#### Regional and local funding opportunities (examples):

- California Ocean Protection Act trust fund
- Local: Moore, Resources Legacy Foundation, CA Coastal and Marine Institute
- Regional Water Boards
- Office of OSPR
- NMS and National Estuary Project Funding
- CALFED RFP
- California Boating and Waterways funding